



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : April 16, 2001

Chu : Group Art Unit: 1714

U. S. Serial No. 09/759,958 : Examiner: P. Michl

Filed January 12, 2001 : Docket No.: W9298-03

For: Thermoplastic Adsorbent Compositions
Containing Wax and Insulating Glass
Units Containing Such Compositions

PRELIMINARY AMENDMENT AND CORRESPONDENCE

Box Patent Application
Director of Patents and Trademarks
Washington, D.C. 20231

Sir:

Applicants respectfully request that the above-identified patent application be amended as indicated below.

In the Claims:

1. (Amended) A thermoplastic adsorbent composition comprising an adsorbent component dispersed in a thermoplastic organic matrix, said matrix containing a wax component and a thermoplastic resin component, said composition containing at least about 15 wt.% of said adsorbent component based on the total weight of the composition, said composition containing at least about 2 wt.% of said wax based on the combined weight of said wax and said thermoplastic resin, said wax having a weight average molecular weight of about 800 - 10,000, and said thermoplastic resin having a weight average molecular

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April 17, 2001
Date

Debbie A. Wall
Signature

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weight greater than 10,000 wherein said thermoplastic adsorbent composition is flowable at 124°C and is capable of adsorbing water to an extent sufficient for desiccating void spaces of insulated glass units.

Claim 4, line 1 change “2“ to --1--.

14. (Amended) An insulating glass unit comprising at least two panes of glass and a spacer element which together define an enclosed space within said unit, said unit being characterized by the presence of a thermoplastic adsorbent composition in communication with said enclosed space, said thermoplastic adsorbent composition comprising an adsorbent component dispersed in a thermoplastic organic matrix, said matrix containing a wax component and a thermoplastic resin component, said composition containing at least about 15 wt.% of said adsorbent component based on the total weight of the composition, said composition containing at least about 2 wt.% of said wax based on the combined weight of said wax and said thermoplastic resin, said wax having a weight average molecular weight of about 800 - 10,000, and said thermoplastic resin having a weight average molecular weight greater than 10,000 wherein said thermoplastic adsorbent composition is flowable at 124°C and is capable of adsorbing water to an extent sufficient for desiccating the enclosed space of said unit.

Please add the following new claims.

28. (New) The composition of claim 1 comprising about 20-80% of said adsorbent.

29. (New) The insulating glass unit of claim 14 wherein said thermoplastic adsorbent composition comprises about 20-80 wt.% adsorbent.

Please cancel claims 3, 5, 13, 17, 19 and 27.

Remarks:

Applicants have amended claims 1 and 14 to reflect the flowable nature of the claimed subject matter. Claim 4 has been amended to be dependent on claim 1.

Claims 3, 5, 13, 17, 19 and 27 have been deleted. The subject matter of those claims were the subject of allowed and issued claims in U.S. Patent No. 6,180,708.

The following are preliminary comments for the Examiner to consider in examining the claims of the above-mentioned patent application.

Claims 1 - 13, and 28 in the above-mentioned patent application's parent were rejected under 35 USC § 102(b) as anticipated by Banslaben. Additionally, claims 1 - 29 were rejected under 35 USC § 103(a) as being unpatentable over Lawson. Applicant respectfully requests that these rejections be reconsidered. Applicant also submits it will forward a Terminal Disclaimer insofar as the Examiner believes the subject matter claimed in this application raise obviousness type double patenting issues with respect to the claims that issued from the parent application, now U.S. Patent 6,180,708.

(1) §102 Rejection Based on Banslaben

The Examiner has stated that Column 10, lines 61-64, of Banslaben anticipates Applicant's invention recited in claims 1-13 and 28. It is respectfully submitted that this rejection is in error and has been misconstrued. In order for a reference to be anticipatory, it has to disclose every element of the claimed invention. It is submitted that Banslaben fails to do so.

For instance, it is stated in the Office Action that Banslaben discloses 20-90% desiccant and that this anticipates at least 15% absorbent as recited in Applicant's claim 1. Banslaben's claims 21 and 22, appearing in column 10, lines 54-65, of the Banslaben disclosure, are the alleged basis for this position. Applicant respectfully disagrees. The relevant portion of Banslaben's claim 21 recites "... (d) about 20% to about 90% *filler*." Banslaben's claim 22 recites "A composition of claim 21 wherein the filler comprises fine filler and/or coarse aggregate *and* a desiccant." It is submitted that Banslaben considers desiccant

separately from filler and does not intend the amount range in claim 22 to necessarily reflect the amount of desiccant used.

For example, Banslaben does not mention desiccant as an example of filler. Column 4, lines 54-66, of Banslaben's disclosure clearly indicates he considers fine filler, e.g., sand, and coarse aggregate to be illustrative of filler. This is the subject matter first recited in Banslaben's claim 22 and according the range of 20-90% in claim 21 refers to that material. Second, Banslaben separately mentions, in column 2, lines 56-69 of his disclosure that desiccant is in addition to filler. There is no mention there of the amount of desiccant to be used. At best, desiccant may be interpreted as some portion of the filler which is present in the amount of 20-90% filler, but Banslaben is silent as to what portion of that contains desiccant. The assumption that this discloses at least 15% by weight is simply not supported and is at best speculation.

(2) *§103 Over Banslaben*

It is also submitted that Banslaben in no way suggests employing at least 15% by weight adsorbent to prepare a composition of Applicant's invention. Applicant's invention is a flowable thermoplastic desiccating material for insulated glass units. The adsorbent component is added to this composition in amounts sufficient to desiccate voids created between dual window panes in these units. Banslaben, on the other hand, teaches low shrinkage polyester compounds used as additives to make construction materials such as flooring and mortars. Banslaben discloses in column 2, lines 58-69, that desiccant can be added to these compounds in order to counteract strength loss that could occur from water droplet formulation in the polyester material. It also mentions that the desiccant counteracts any dimensional changes occurring as a result of water loss. Banslaben however does not discuss specific amounts of desiccant to be used, and it is submitted, given the limited disclosure surrounding the desiccant, the skilled artisan would consider desiccant as a minor additive in Banslaben's composition. Moreover, desiccants can be relatively more expensive compared to conventional filler, and it is submitted that the skilled artisan would be motivated to minimize desiccant as much as possible.

It is also not seen where Banslaben teaches using the relatively low molecular weight wax employed in Applicant's invention to enhance flowability of a thermoplastic adsorbent composition. Banslaben is primarily directed to a polyester shrinkage control aid or additive. It is not directed to combining components to enhance flow properties and loadings in thermoplastic matrix masses. As mentioned earlier, the wax is used in Applicant's invention in combination with a thermoplastic resin to produce a flowable composition at 124°C, yet also can contain at least 15 and preferably at least 55 weight % adsorbent. Banslaben, on the other hand, mentions waxes briefly on Column 5, line 52, but does not mention the weight average molecular weight or its use in any particular combination with a thermoplastic composition to arrive at a flowable thermoplastic composition as whole. Indeed, the materials in Banslaben are not referred to as thermoplastic and there is no basis to assert that Banslaben's teachings suggest that one would arrive at Applicant's invention. Reversal of the §103 rejection based on Banslaben is requested.

(3) *§103 Over Lawson*

Claims 1-29 have also been rejected under § 103(a) as being unpatentable over Lawson. As indicated in Lawson's abstract, Lawson's composition is designed to manufacture or extrude *rigid* profile structures having smooth finishes. Lawson's primary component is a chlorinated polyvinyl chloride. While Lawson mentions the use of silica gel in these polyvinylchloride materials, the silica gel is mentioned as a "filler". Moreover, silica gel is mentioned in column 10, lines 46-50, as just one component on a list of other materials which are not adsorbents. Lawson also does not motivate one to specifically select silica gel, much less silica gel that can act as an adsorbent. Even further, Lawson does not teach using specific amounts of silica gel and therefore it is not seen which part of the Lawson reference suggests using at least 15 wt. % adsorbent.

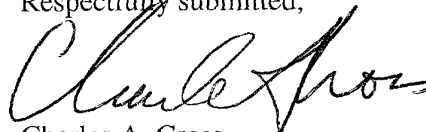
Indeed, as with Banslaben, Lawson is not directed to flowable adsorbent compositions. Lawson's compositions relate to compositions used to make rigid structures and Lawson's invention particularly addresses creating smooth finishes on such structures. It is not seen where a single mention of silica gel in such a

composition would teach flowable adsorbents. It is requested that the §103 rejection based on Lawson also be reversed.

In summary, it is indicated in the Office Action that the term "adsorbent" has been construed by the Examiner as having a breadth that snares the subject matter disclosed by Banslaben and Lawson, which when looked at as a whole are clearly irrelevant to Applicant's invention. This breadth has been imparted to Applicant's claims in view of the term "adsorbent" and the Examiner's belief that Applicant, as its own lexicographer, can interpret the term as she sees fit. It is submitted that this is irrelevant. Applicant's claims recite clear recitations, e.g., "at least 15% ", "at least 55%", etc. which are neither taught nor disclosed by these references.

Accordingly, Applicants earnestly solicit early notification that the claims are allowed in the form of a Notice of Allowability

Respectfully submitted,



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1. (Amended) A thermoplastic adsorbent composition comprising an adsorbent component dispersed in a thermoplastic organic matrix, said matrix containing a wax component and a thermoplastic resin component, said composition containing at least about 15 wt.% of said adsorbent component based on the total weight of the composition, said composition containing at least about 2 wt.% of said wax based on the combined weight of said wax and said thermoplastic resin, said wax having a weight average molecular weight of about 800 - 10,000, and said thermoplastic resin having a weight average molecular weight greater than 10,000 wherein said thermoplastic adsorbent composition is flowable at 124°C and is capable of adsorbing water to an extent sufficient for desiccating void spaces of insulated glass units.

4. (Amended) The composition of claim 1 wherein said composition contains about 57-65 wt.% of said adsorbent composition.

14. (Amended) An insulating glass unit comprising at least two panes of glass and a spacer element which together define an enclosed space within said unit, said unit being characterized by the presence of a thermoplastic adsorbent composition in communication with said enclosed space, said thermoplastic adsorbent composition comprising an adsorbent component dispersed in a thermoplastic organic matrix, said matrix containing a wax component and a thermoplastic resin component, said composition containing at least about 15 wt.% of said adsorbent component based on the total weight of the composition, said composition containing at least about 2 wt.% of said wax based on the combined weight of said wax and said thermoplastic resin, said wax having a weight average molecular weight of about 800 - 10,000, and said thermoplastic resin having a weight average molecular weight greater than 10,000 wherein said thermoplastic adsorbent composition is flowable at 124°C and is capable of adsorbing water to an extent sufficient for desiccating the enclosed space of said unit.

28. (New) The composition of claim 1 comprising about 20-80% of said adsorbent.

29. (New) The insulating glass unit of claim 14 wherein said thermoplastic adsorbent composition comprises about 20-80 wt.% adsorbent.